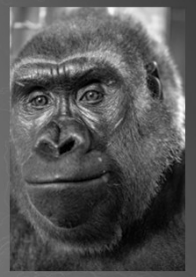

ASSESSING AGGRESSION IN A GORILLA TROOP THROUGH CLINICAL REASONING

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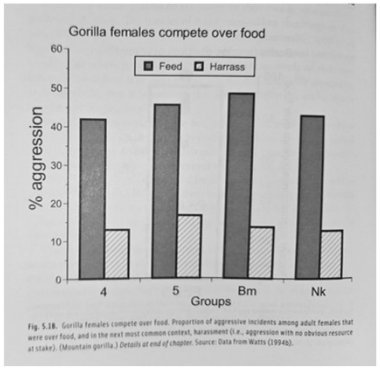
IS THE AGGRESSION NORMAL OR PATHOLOGICAL?

- What is normal?
  - Let's look at the SOCIOECOLOGY of the species
- Troop – large animals, do not travel a lot, spend most time on the ground – PREY
- 1 male – dominant to all females, keeps a group of females for reproduction
- Multiple (3-5) females, related or unrelated, no clear linear hierarchy, low cooperation, compete over food – stay with a male for protection from predation and infanticide – females can leave a group to find a stronger male

NORMAL AGGRESSION



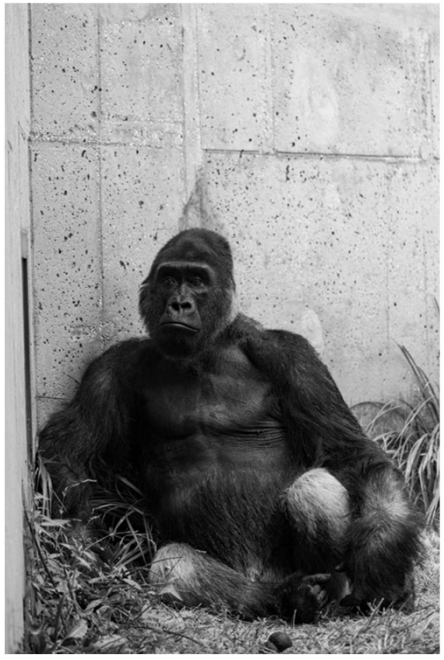
- > 75% aggression and supplant between females over food
  - Followed by harassment (may be unprovoked)
- Nearly half of aggressive encounters result in wounds for one or both gorillas (Watts 1994)
- Male can intervene, typically protecting the submissive female
  - **Females can leave the group for a stronger male**
- OBSERVATIONS OF GORILLAS IN THEIR NATURAL ENVIRONMENT
  - Not valid for gorillas in captivity
  - In captivity, case-by-case analysis of the external and internal environment

CLINICAL REASONING

- Inductive reasoning process that, through a critical analysis of signs in the external and internal environment, allows reaching a determination or diagnosis
- External environment
  - Troop composition
  - Confinement
  - Facilities
  - Climate
  - Other animals (including humans)
  - Nutrition

CLINICAL REASONING

- Inductive reasoning process that, through a critical analysis of signs in the external and internal environment, allows reaching a determination or diagnosis
- Internal environment
  - Physical Health
    - Pain, discomfort
    - Aging
  - Behavioral Signs
    - Objective measurements: ethogram
    - Individual temperament
  - Cognition
    - Standardized testing

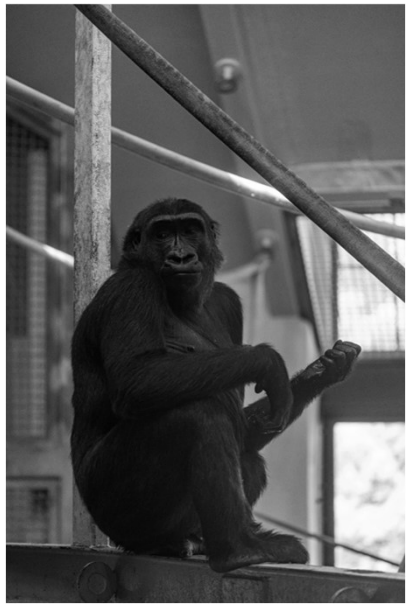


APPLICATION TO ASSESS AGGRESSION IN A TROOP OF CAPTIVE GORILLAS

- Alessandro Lamacchia VMD
- Troop: 1 male and 3 females
    1. 39 years, male (Silverback)
    2. 30 years, female
    3. 25 years, female
    4. 8 years, female, daughter of #1 and #2
- Frequent but variable aggression involving all animals
- External factors considered as possible triggers
    - Contraception (Internal?)
    - Nutrition/enrichment
    - Unruly young individuals

APPLICATION TO ASSESS AGGRESSION IN A TROOP OF CAPTIVE GORILLAS

- Additional questions?
  - Is the age of Silverback affecting the stability of the group?
  - What is the temperament of the individuals (anxiety, fear, distress, aggressiveness)?
- Phase 1: Measuring baseline behavior and environmental changes
  - Ethogram *"What do the gorillas actually do?"*
  - Record changes in external and internal environment
- Phase 2: Measuring interactions with other external and internal factors



Gorillas Ethogram Penn Vet .XLSX

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A1 Behavior category

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	Stereotype	Rock	occurred while it is gripping the cage bars with its hands or while perched on a horizontal bar. Rocking occurs in association with finger sucking. This behavior has been observed only in the younger adult female.	Gorilla Behavior Advisory Group, 1991															
23	Stereotype	Hand clap	Hands, with fingers curled in, are brought together rapidly several times. This behavior has only been observed in the younger adult female.	Gorilla Behavior Advisory Group, 1991															
24	Stereotype	Pace	Repetitious, patterned and usually unidirectional movement around the exhibit/habitat. The animal seldom makes more than two complete circles about an enclosure. Pacing speed is faster than the usual walking speed. This behavior is seen in the younger silverbacked male and in both adult females.	Gorilla Behavior Advisory Group, 1991															
25	Stereotype	Finger sucking	Animal will insert forefinger and/or middle finger of either hand completely into mouth. Seen frequently in association with rocking. Occurs while the animal is in a sitting, squating, or perched position. Legs are bent up near chest, arms are on knees, or folded across chest. This behavior has been observed only in the younger adult female.	Gorilla Behavior Advisory Group, 1991															
26	Stereotype	Belly scratching	Rhythmic flexion of fingers or up and down movement of wrists so that the fingers are rubbed gently across stomach region. Hands may alternate scratching, scratch in unison, or scratch singly. The scratching posture is sitting with knees acutely bent and rotated outwards so the soles of the feet are flat against each other or legs may be slightly extended with feet gripping cage bars. Seen only in adult females.	Gorilla Behavior Advisory Group, 1991															
27		Abnormal	Subject engages in repetitive or unnatural behaviors such as coprophagy, regurgitation, stereotyped body movements, etc.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
28		Scratch	Subject rakes fingers across skin with large sweeping movements.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
29		Self-directed behav	Subject attends to its own body usually in the form of self-grooming. Includes shorter-duration behaviors such as self-touching but does not include scratching (see above).	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
30		Feed/forage	Subject eats food or is actively searching for food.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
31		Attention	Subject is stationary, proximate to a barrier through which it can view human activities. Includes visitor space and keeper space.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
32		Pro-social	Subject engages in positive, friendly social behavior with a conspecific. Includes social grooming and playing.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
33		Agonism	Subject engages in aggressive behavior with a conspecific including fighting, biting, displaying. Also includes submissive behaviors such as bared-teeth grin, screaming and hunched posture.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
34		Inactive	Subject is stationary and not engaged in other behaviors.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
35		Proximate	Subject is touching or within 1 m of a conspecific.	Transfer and Acclimatization Effects on the Behavior of Two Species of African Great Ape (Pan troglodytes and Gorilla gorilla gorilla) Moved to a Novel and Naturalistic Zoo Environment															
36	Anxiety	Yawning		Gorilla Behavior in response to systemic alternation between zoo enclosures															
37	Anxiety	Scratching		Gorilla Behavior in response to systemic alternation between zoo enclosures															
38	Posture	Recline	Laying down; maintaining dorsal, ventral, or lateral contact with horizontal substrate	Gorilla Behavior in response to systemic alternation between zoo enclosures															
39	Posture	Sit/crouch	At rest on buttocks or on feet with knees bent in crouched position	Gorilla Behavior in response to systemic alternation between zoo enclosures															
40	Posture	Stand	A quadrupedal, tripedal, or bipedal stance with two to four extremities in contact with sustrate	Gorilla Behavior in response to systemic alternation between zoo enclosures															
41	Posture	Walk	Forward quadrupedal, tripedal, or bipedal movement at a slow to moderate pace; must move at least one body length	Gorilla Behavior in response to systemic alternation between zoo enclosures															
42	Posture	Run	Forward quadrupedal, tripedal, or bipedal movement at a fast pace; must move at least one body length	Gorilla Behavior in response to systemic alternation between zoo enclosures															
43	Posture	Climb	Ascent or descent in vertical space using permanent or temporary environmental features	Gorilla Behavior in response to systemic alternation between zoo enclosures															
44	Behavior	Feed/forage/drink	Includes searching for or processing food items; consumption of food or water; and chewing what is known to be a food item (excluding regurgitated matter)	Gorilla Behavior in response to systemic alternation between zoo enclosures															
45	Behavior	Object examination	Carrying, holding, intently looking at (within arm's reach), or actively manipulating (with hands or mouth) a free standing item, environmental element, or substrate	Gorilla Behavior in response to systemic alternation between zoo enclosures															
46			Frivolous, exaggerated movements oractions exhibited primarily by infants, juveniles, or young adults such as rolling, twirling, clapping, arm flapping, etc.																

Sheet1

THANK YOU!

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Photos: A. Lamacchia